WEB Based Data Archive for the High Wind C-Blast Project

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https://cblast.ecs.umass.edu

LONG-TERM GOALS

Our primary goal is to contribute to our understanding of air-sea surface flux processes in high winds, specifically in the complex conditions of tropical hurricanes through the development of a central web-based data archive system to host and distribute field experiment data to all CBLAST researchers.

OBJECTIVES

Our scientific objective is to collaborate with and support Dr. Peter Black and Co-investigators to meet the goals set forth in the proposal entitled, Air-Sea Flux Estimation in High Wind Boundary Layers (ONR Award #N00014-01-F-009). In particular, we will

1. provide a central web-based data archive that will allow secure access to the data set collected during the ONR CLBAST effort by CBLAST team members, and

2. provide web pages describing the ONR CBLAST program for the general public and scientific communities.

APPROACH

To meet our objective, a data-driven two-tier architecture is chosen for the CBLAST High Wind data archive site. The physical architecture of the web site is shown in Figure 1. Actual CBLAST data are stored on the terabyte RAID systems, while the metadata are stored inside a MySQL database. A free Linux/Apache web configuration is chosen to improve throughput performance and to reduce the software cost. SSL (Secure Socket Layer) technology is used for providing secure sessions of user authentication and data transfer. PHP scripting language is adopted for accessing the database and dynamically generating HTML page content based on database update.

The web site will allow upload of raw data files and quick-look images and products through secured link. Web page content will be automatic updated for viewing and/or downloading of uploaded products. Download methods that are supported include download by instrument, by date and time, by measurement parameters, by experiments, by weather events.

Report Documentation Page

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Approved for public release; distribution unlimited

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14. ABSTRACT
Our primary goal is to contribute to our understanding of air-sea surface flux processes in high winds, specifically in the complex conditions of tropical hurricanes through the development of a central web-based data archive system to host and distribute field experiment data to all CBLAST researchers.

15. SUBJECT TERMS

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a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**6**	

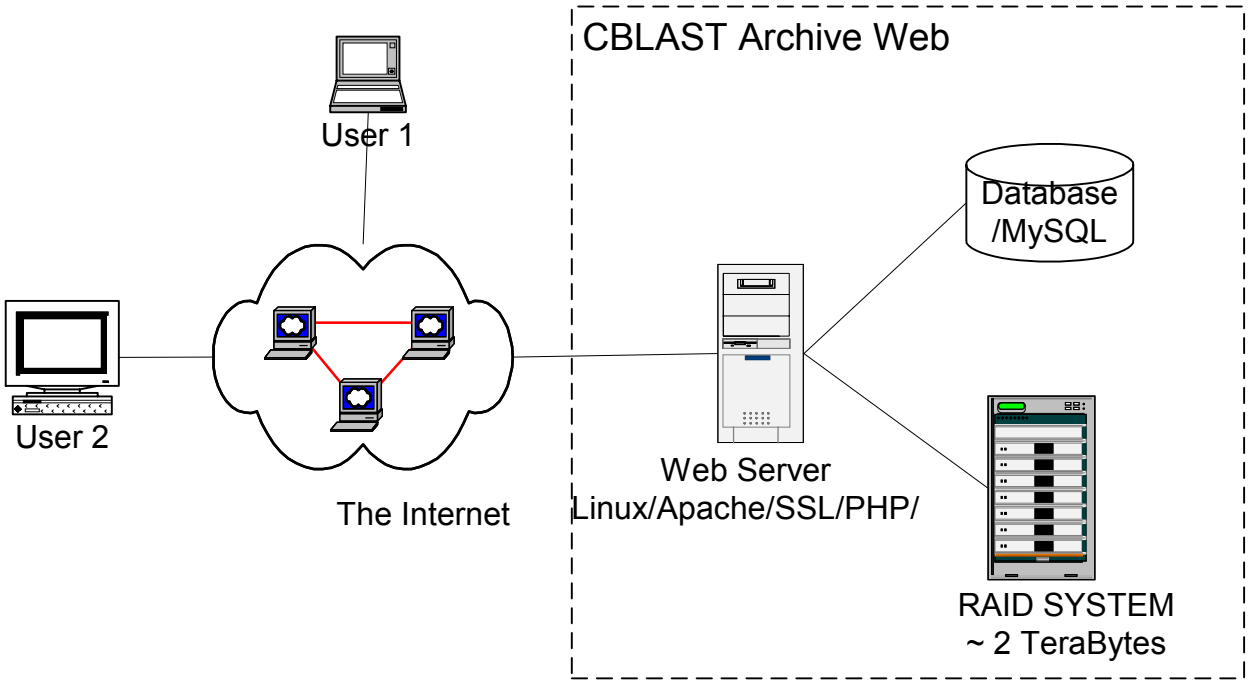

Figure 1. Physical Architecture of the CBLAST High Wind Data Archive Web Site.

The UMass CBLAST effort is led by Prof. David J. McLaughlin, with Dr. Alex Xuehu Zhang assisting.

WORK COMPLETED

The CBLAST High Wind data archive site has been setup and is currently running at https://cblast.ecs.umass.edu/. Note to use https:// instead of http:// to maintain secure SSL sessions. To access the secure member area, use username:xuehu and password:tiger1. Figure 2 shows member area raw data download page.

Hardware Status: All hardware systems have been purchased and setup except the second terabyte RAID system, which is scheduled to be purchased and setup in FY03, as proposed in the proposal.

Software Status: We have finished the first release of our data drive web site. This release allows automatic upload and download of raw data files collected during CBLAST hurricane field campaigns. Figure 3 shows the database model currently implemented behind the CBLAST High Wind data archive site. PHP scripts are written to automate the processes of uploading and downloading raw data files. We are waiting for feedbacks from CBLAST PIs on quick-look data format to start the second release effort. We will implement the database and PHP code for uploading and viewing quick-look products after we obtained the required information from CBLAST PIs. The scheduled finish date for the quick-look archive site release is 11/30/2002.

Data Archive Status: There are only limited data on the site for demonstration purpose right now. We plan to collect and archive all data collected during the 2002 NOAA HRD CBLAST Hurricane Field

Program after the experiment ends. The archiving process will slowly evolve from an "UMass collecting" mode to a "CBLAST member uploading" mode. We will promote use of the web site by providing user documents and archive summaries to CBLAST researchers. We will also collect feedbacks from the users and make improvement on the web site based on these feedbacks.

Figure 2. Member Rawdata Download Interface.

RESULTS

UMass has purchased the hardware for a web-based data archive and finished the first release of the software. The first terabyte RAID system has been set up and a second will be ordered in FY03. This

web site will provide and maintain a central web-based data archive and will allow secure access to the data collected by CBLAST investigators during the 5 year span of this program. The second release with quick-look capability is December, 2002.

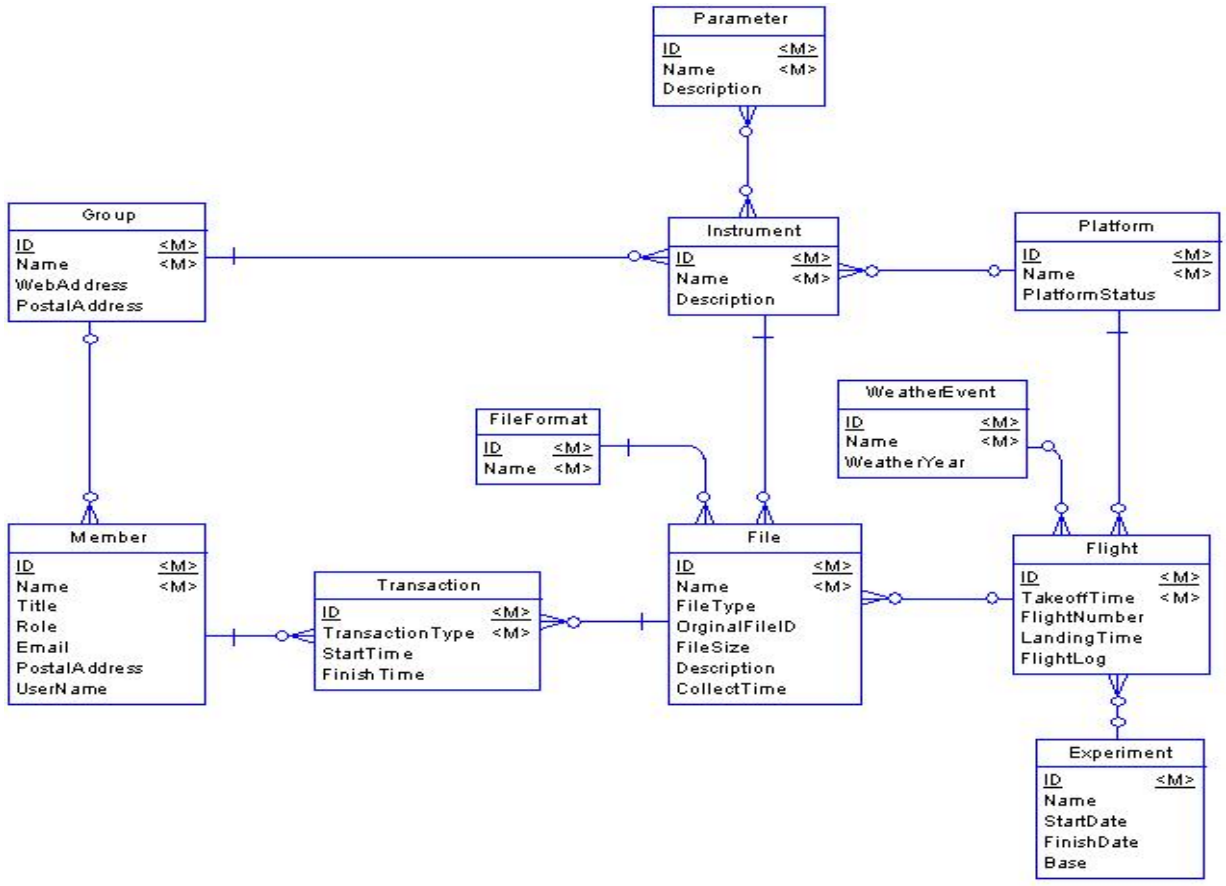

Figure 3. UMass CBLAST High Wind Data Archive Site Database Model.

IMPACT/APPLICATIONS

The impact of the web-based data archive by UMass will be to provide a central site for easy archive and retrieval of CBLAST data sets by all CBLAST PIs in near real time. It will also provide for a central Hurricane CBLAST web site for PIs to use in describing initial results of their studies.

RELATED PROJECTS

Air-Sea Flux Estimation in High Wind Boundary Layers, ONR Award #N00014-01-F-009.
UMass Participation in the Air-Sea Flux Estimation in High Wind Boundary Layers, ONR Award #N00014-01-1-0923.

SUMMARY

UMass has setup a CBLAST-High Wind data archive site. The web site provides a general description of the CBLAST- High Wind project and a way of securely uploading and downloading raw data files collected during CBLAST field campaigns. Supported raw data file download methods include download by Instrument, by Date, by Parameters, by Experiment, and by Weather Events. Second release of the web site, which will include the capability of uploading and viewing quick-look products, is scheduled for December 2002.